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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,679	12/04/2001	Charles Scott Nelson	DEP-0262	7642

7590 09/17/2003  
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EXAMINER

PHAN, THIEM D

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 09/17/2003

5

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/004,679

Applicant(s)

NELSON ET AL.

Examiner

Tim Phan

Art Unit

3729

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. The amendment filed in Paper No. 4 (filed 8/19/03) has been fully considered and made of record.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 13 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The original disclosure fails to specify the range of the material to be ablated as now claimed. "wherein about 50 to about 200mm of material is ablated" (Cf. Claim 13, line 4) are considered to be new matter.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, 4, 9, 10, 12, 15 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Chapel, Jr. et al (US 4,907,341) hereinafter '341.

**As applied to claim 1**, the '341 teaches a method of manufacturing a compound thin, thick, polymer or bulk metal film resistor (Cf. column 7, lines 60-62), comprising:

- disposing an amount of material having a TCR of between +500 to +9000 ppm (Cf. Fig. 2, element 42; column 4, lines 59-63) and a resistivity of 0.1 ohm per square (Cf. column 6, lines 29-30) or 7 micro-ohm-cm (for Nickel) on the substrate (Cf. Fig. 2, element 12),
- measuring (Cf. column 6, lines 11-14) the resistance value of the compound and laser machining for adjustment which is carried out under the guidance of a computer.

**As applied to claim 2**, the '341 teaches a thin, thick, polymer or bulk metal (Cf. column 7, lines 60-62) film resistor which is deposited on the substrate (Cf. column 3, lines 66-68).

Art Unit: 3729

**As applied to claim 4**, the '341 teaches that the first setting of resistive material (Cf. Fig. 2, element 42; column 4, lines 3 & 4) is deposited on the substrate and the second setting of resistance material (Cf. Fig. 2, element 4; column 4, lines 4 & 5) is deposited on the first one.

**As applied to claims 9 and 10**, the '341 teaches that the substrate is glass or alumina from ceramic material (Cf. column 3, lines 40-42)

**As applied to claim 12**, the '341 teaches the laser trimming or machining under computer guidance and measurement (Cf. Fig. 2, element LASER TRIMMING; column 6, lines 11-18) to remove accurately the resistive materials (Cf. Fig. 2, elements 42 & 44) on the substrate.

**As applied to claims 15 and 16**, the '341 teaches that the laser trimming or ablating of the material on the surface cuts a pattern of elongated configuration (Cf. Fig. 2, element 52) within a serpentine shape (Cf. Fig. 2, element 44).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 3729

7. Claims 3, 5-8, 11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over the '341.

**As applied to claim 3**, the '341 teaches the claimed invention except for reading the resistor value within 0.2% of resistance value.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to obtain such accuracy since it was known in the art that the measurement is carried out under the guidance of a computer (Cf. column 6, lines 11-13) and this means of measurement will give the accuracy which is recited.

**As applied to claims 5-7**, the '341 teaches the claimed invention except for measured or monitored firing or heat-drying of the thin film resistor between the two settings. The '341 teaches that it is known to adjust and deposit the second resistive material on the first one (Cf. 4, lines 4-7).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to fire or heat-dry the first deposit of resistive material so that the second resistive material can be adjusted before its deposition.

**As applied to claim 8**, the '341 teaches the claimed invention except for the deposition of resistive material from one of Platinum, Rhodium, Titanium, Palladium or their alloys.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to select these materials or their alloys since it is known in this art that a selected, deposited material, e.g. Nickel, has a resistivity of 7 micro-ohm-cm.

**As applied to claim 11**, the '341 teaches the claimed invention except for the temperature firing between 1,000 to 1,600 degree Celsius.

The temperatures used to fire the temperature sensor are held to be within the ordinary skill of the artisan and would have been chosen without undue experimentation. Hence Claim 11 is obvious in view of the '341. Alternatively there is no criticality to the limitation recited in this claim.

**As applied to claim 14**, the '341 teaches the claimed invention except for the ablation or trimming by laser of the resistive material layer by an amount determined in relation to overshoot value of thermal coefficient of resistance of the material.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to ablate or trim by laser the resistive material layer by an amount determined in relation to overshoot value of thermal coefficient of resistance of the material since it is known in this art that a step of laser trimming can be applied by computer measurement and laser guided trimming (Cf. column 6, lines 11-15) through the absolute value of the temperature coefficient of resistance of the resistive material. (Cf. column 5, lines 21-31).

Art Unit: 3729

8. Claim 13 is further rejected under 35 U.S.C. 103(a) as being unpatentable over the '341.

The '341 teaches the claimed invention except for the ablation or trimming by laser of the resistive material layer in the range of 50 to about 200 mm.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to ablate or trim by laser the resistive material layer in the range of 50 to about 200 mm since it is known in this art that a step of laser trimming can be applied to a thick, thin, bulk metal or polymer film resistive layer (Cf. column 7, lines 60-63).

#### ***Response to Arguments***

9. Applicants' arguments filed 8/19/03 have been fully considered but they are not persuasive for the following reasons:

Applicants recite *inter alia* "disposing a thick amount of material" (Cf. claim 10, line 3). The Patent Office's position, as stated in the preceding Action, was and continues to be that since the '341 teaches the disposition of a thick, thin, bulk metal film resistive (Cf. column 7, lines 60-62) on a substrate for laser ablation or trimming.



Art Unit: 3729

10. With the remainder of the claims rejected under either 35 USC 102 or 35 USC 103, they stand rejected as carefully articulated in the previous and current Office Action and in Responses to Remarks in paragraph 9 above.

### *Conclusion*

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 3729


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tim Phan whose telephone number is 703-605-0707. The examiner can normally be reached on Monday - Friday, 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter VO can be reached on 703-308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1148.

TP

Tim Phan  
Examiner  
Art Unit 3729

  
**CARL J. ARBES**  
**PRIMARY EXAMINER**

tp  
September 13, 2003